

HOT PACE ON A SINGLE RAIL

Remarkable Speed on a New Electric Railroad Near Brussels.

TALL CLAIMS OF THE INVENTOR

One Hundred Miles an Hour the Regular Gait, with Sparks of 2000. Curious Features of the Road and Its Engines.

While railroad operators are bussing at making their sixty miles an hour in England inventors have quietly built a line of railroad on which trains run regularly at the rate of 100 miles an hour, and frequently attain a speed of from two to three miles a minute. And it is a practical achievement, with all the care and expense of carrying the passengers and their baggage. Mr. F. B. Behr, the engineer and inventor, has just formed a syndicate in London for constructing a line on his new system between Liverpool and Manchester. He calls it, very truly, the "Lightning Express railway." It will regularly make the distance of about thirty miles in twenty minutes, including stops. Between stations the cars will frequently attain a speed of two miles a minute.

The character of the new road is as strange as its achievements. The trains run on a single rail set several feet above ground. The trestle-work, and the motive power is furnished by electricity. The inventor himself is a bit of a bun turned upside down, with wheels set thick along the part that answers for the bun cruse, and hedged about with guide-wheels so that it cannot jump the track along which it is propelled.

Wonders of the New Road.
Work on the Liverpool and Manchester

to Florida for a Sunday's outing, leaving Saturday night and coming back on Monday morning, and according to Mr. Behr, this could be accomplished with even greater safety than that attained in the swift-running double-track trains of today.

Cost of Single Rail Lines.

The question of cost, of outlay and possible returns, is of course crucial. Mr. Behr is frankness itself there. He sets down approximately estimates of first cost at from \$60,000 to \$100,000 the mile, but assures that the single-rail lines can carry passengers at a less rate than is now charged upon fast trains, and will pay dividends upon their capital. He says that the single-rail lines need no interchange with freight roads, nor even of managing the passenger business. What he advocates is the commencing of single-rail systems along some of the great trunk lines, possibly in connection with them, so that impatient travelers, or timid ones, or those under stress of business, may be whisked away by his means leaving the Pullmans and vestibule trains to those who have time and leisure.

The genesis of this Terrene line is most interesting. It is as much an evolution as it may work a revolution. Various and sundry other single-rail lines have existed in various and sundry parts of the world, but none of them had the power of steam. The Terrene line is, however, the first to run by harnessed lightning. Its immediate prototype is the single-rail trolley line running from Listowel to Ballybreen-



INTERIOR OF MONO RAIL COACH



MONO RAILROAD CARRIAGE BRIDGE

THE MONO RAILROAD AND ITS INVENTOR

road will begin within a few months. The first line of the kind built by Mr. Behr, in Tervueren, near Brussels, Belgium, has been in operation for some months, and has been found to be remarkably successful. It crosses a river and as it circles around short curves, it climbs straight up twenty feet and leaves its devotees by means of what are probably the most curious switch arrangements in the world, and it gives its passengers a new sensational sensation of a speed of propulsion hitherto unattained in any contrivance invented by man for the transportation of passengers. Indeed, it is said that the curious lengthwise arrangement of the seats within the cars was to prevent the full effect of the appearance of swiftness on the passenger. Mr. Behr says that a man who sits and looks straight out of a car window, instead of looking ahead as he would if he sat with one shoulder to the window, as in American cars, does not get such an alarming impression of terrific speed.

Mr. Behr has been quietly operating the trains on this new line in Belgium for some time past, and he has put it to the severest and most exacting tests, such as operating the trains under a speed of 150 miles an hour around sharp curves and dropping them down steep grades without any diminution of velocity. The Tervueren road is three miles long, built in the shape of an ellipse. That to say, there are two straight sides joined by curved ends, the curves having a radius of 1,000 feet. The track is 4' 8 1/2" standard and laid upon ground sleepers. Upon top of the trestle there is the single bearing rail and at either side of it, lower down, a guide rail.

How the Road is Constructed.

That is not so very wonderful, but you cannot say so much of the car itself. It is a sort of double-decker, about sixty feet long, and dual lengthwise as well as vertically throughout its lower half. This double lower portion houses the main wheels, the guide wheels and the electric motors, which receive their power from a conductor laid along the track. There are four of these motors weighing three tons each. They are attached to four of the eight carriage wheels. With one revolutions per minute each motor develops 100 horse power. The car will go at a speed of 100 miles an hour, which can easily be doubled.

Beside the eight carriage wheels there are thirty-two guide wheels, which run upon the guide rails and preserve the equilibrium. Thus even at three miles a minute there is no possibility of derailment. The upper half, the car proper, seats 100 passengers, and has beside compartments for the electrician and conductor. In the electrician's cabin there are two air-brakes, the one for slackening speed, the other for actually stopping the train.

Electricity comes from a power house, in the Tervueren park, which has a capacity of about 1,000 horse power. The cylinder has a working stroke of 70 inches. Electricity is sent to the line by a copper cable properly connected to the steel contact-rail which is carried on china insulators, made fast to the sleepers. This contact-rail feeds especial collectors, which in turn pass the power to the motors.

This line has sharper curves and steeper gradients than are likely to occur on any commercial railway. And it has itself been most severely and impartially tested under the eyes of commissioners specially appointed by the governments of Belgium and Russia. So it is worth while to test what these big-wig official gentlemen say of it.

"A single-rail line, on trestles, with a bearing surface for the vertical pressure of the running stock, and supplied with guide-wheels to resist lateral pressure, offers fewer chances of derailment than the ordinary railway," says one. A second comes in like an echo: "A single-rail line with curves of the radius common upon express routes can be travelled over much more rapidly and more safely than an ordinary track."

Curiosities of the New Line.

One of the curiosities of the Terrene line is the method of crossing country roadways, of which there are several through the park at Tervueren. In order to maintain such a speed it would be liable to have to slow down for a crossing. Accordingly, Behr has rigged up a marvelous drawbridge (or road) which will train approaches the two sections of the bridge, parting in the middle, fly up, allowing the train to pass at full speed.

Mr. Behr expects in the future to use this new invention not only for short distances between densely populated cities, but for long distances through the country where the passenger traffic is large. If his line now projected from Liverpool to Manchester is entirely satisfactory, think of the possibilities for still longer ones! For instance, a travelling man might be in bed in the evening in a train to New York and wake up fresh for business in Chicago the next morning. It would be perfectly feasible to go

as guests nearly 100 of the most prominent men throughout the union. Two thousand spectators will sit in the galleries and boxes.

A dinner for 1,600 is quite beyond the resources of the Waldorf-Astoria. It is four times the number that Delmonico or Sherry ever undertook to serve. It is almost equal to feeding two whole regiments of soldiers in a week.

It will take 250 spring lambs to furnish the tender mutton and choice chops. A special train of ten express cars will come up from Georgia and Virginia, bringing strawberries, asparagus, green dressing.

To supply a single course of shell oysters will require twenty-five barrels of the finest kinds that can be selected. Twenty-five barrels more of smaller oysters will be used for making soups and dressings.

But perhaps the most inviting of all will be the wine list. Champagnes from \$10 to \$20 a bottle will be one of the courses. Then there will be all the old favorites in Burgundy, where the vineyards, vinegars and wines from vintage to vintage, we tell that it would take an historian to tabulate them.

Altogether 1,250 gallons of liquors will be supplied. There will be 5,000 bottles of champagne alone. Imagine the 1,000 bottles in all in which this will come, filled up for an exhibit. It would be fifteen feet at the base and rise up from the orchestra floor in the form of a pyramid half way to the dome of the Metropolitan opera house.

The amount of coffee to be drunk will be somewhat less, but even this will amount to 800 pints, or enough to fill a coffee pot the size of three barrels.

It will take seventy-five turtles, 2,500 chickens, 200 turkeys, 100 pheasants, 1,000 partridge, ducks and pigeons, turkeys and pheasants in like proportion.

To provide space for 1,600 to sit down at tables, the orchestra space will be floored over on a level with the stage. The stage alone of the Metropolitan opera house is ninety feet deep and 101 feet across. But this will be less than half the space occupied by the tables. They will extend over

the entire width of the building lots.

The laying out of the tables that is to seat these 1,600 diners was an important matter that a civil engineer and a specialist were called upon. The round room was designed, could seat only 1,250. So the opera house and the wings of the stage will have to be fitted up with tables to seat the remaining 350.

On the stage, on an elevated platform, will be placed seats for 100 of the honored guests and some of the leading democrats of New York. It will require 250 waiters at the tables. A corps of 100 will be needed in the chefs' department to cook and dish up this dinner.

For a temporary kitchen the arched side-

walls along the Thirty-ninth street side of the Metropolitan opera house will be boarded up and made into a vast shed. Here will be placed ranges, sideboards, ice-chests and all the accessories of a hotel culinary department.

The basement and cellar of the opera

stage will also be used for this purpose.

Even such commonplace things as dishes, spoons, knives and forks rise into importance on an occasion like this. For it will take 30,000 plates, 20,000 knives and forks, 10,000 spoons and so on through the whole list of similar things. The cost of this dinner party will be \$16,000. It is said, for which the individual diners will pay at the rate of \$10 apiece, except the invited guests.

A curious feature of this political dinner is that it will have living souvenirs of the occasion it celebrates, Jefferson's birthday. These souvenirs are to be twelve men from

the false flooring clear out beneath the first balcony. This will be a space of 25,000 square feet, or equal to that of thirteen city building lots.

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